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ABSTRACT

In this paper, standards-based curriculum alignment is represented as an inquiry strategy for creating a district's coherent curriculum for kindergarten through grade 12. A coherent curriculum is one in which the district's written curriculum is externally congruent with state and/or national academic content and performance standards, and the district's actual curriculum as taught is internally congruent with its standards-based written curriculum. This paper argues that the implementation of the "how-to" process of curriculum alignment is a necessary, but insufficient, condition for substantive improvements in teaching and learning. Incorporating new perspectives on curriculum coherence, curriculum inquiry, and mindful teaching into the "how-to" steps of alignment will, however, unite the "how-to" with the "why-to." It is through standards-based curriculum alignment guided by mindful teaching that educators may overcome the barriers to school change that have, thus far, impeded achievement of higher standards for all. The paper reviews traditional approaches to curriculum alignment, and discusses new "how-to" approaches, including professional development, on-line resources, and products and tools for assuring internal and external curriculum congruence. "Why-to" approaches and an inquiry strategy for achieving standards-based curriculum alignment are also discussed. (Contains 6 figures and 44 references.) (SLD)

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# Achieving Standards-based Curriculum Alignment Through Mindful Teaching

*by*

Cheryl Rappaport Liebling
RMC Research Corporation
Portsmouth, New Hampshire

*produced by*

**The New York Technical Assistance Center (NYTAC)**
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and
**The George Washington University**
**Region III Comprehensive Center**
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## Abstract

Standards-based curriculum alignment has recently received considerable attention from state departments of education and local school districts as an important strategy for achieving higher standards of teaching and learning. In this paper, standards-based curriculum alignment is represented as an inquiry strategy for creating a district's K-12 coherent curriculum. A coherent curriculum is one in which the district's written curriculum is externally congruent with state and/or national academic content and performance standards, and the district's actual, taught curriculum is internally congruent with its standards-based written curriculum.

The paper argues that the implementation of the "how-to" process of curriculum alignment is a necessary, but insufficient condition for substantive improvements in teaching and learning. A tendency to jump to the "how-to" without sufficient time for reflection on the "why-to" puts standards-based curriculum alignment in jeopardy of failing to achieve its goals. Incorporating new perspectives on curriculum coherence, curriculum inquiry, and mindful teaching into the "how-to" steps of alignment will, however, unite the "how-to" with the "why-to." It is through standards-based curriculum alignment guided by mindful teaching that educators may overcome the barriers to school change that have, thus far, impeded achievement of higher standards for all.

Highlights of the paper include:

- A historical review of traditional approaches to curriculum alignment prior to the current standards movement including a discussion of backloading and frontloading as key alignment concepts.
- New "how-to" approaches to designing standards-based curriculum including professional development opportunities, on-line resources, and products and tools for establishing the external and internal congruence of a district's curriculum.
- New "why-to" approaches including curriculum coherence, curriculum inquiry, and mindful teaching that can inform the design of standards-based curriculum.
- An inquiry strategy for achieving standards-based curriculum alignment through mindful teaching with examples of the strategy incorporating state standards and benchmarks.

# Achieving Standards-based Curriculum Alignment Through Mindful Teaching

## Introduction

The current era of systemic school reform throughout the United States provides educators with a unique opportunity to become active participants in the renewal of American education. Some may worry that the involvement of the federal and state governments and a host of national and state organizations in developing academic content and performance standards and associated assessments is an infringement of the local district's responsibility for curriculum. Nevertheless, it is becoming clear that the ultimate success of systemic reform largely rests on the commitment of every educator to utilize academic standards and performance assessments, regardless of the source, as the basis for improving the quality of teaching and learning. "Thinking globally, but acting locally" takes on new meaning when educators understand their pivotal role in creating learning environments in which more students achieve the academic proficiencies that they will need for the future. In this context, districts can turn to curriculum alignment[1] as an inquiry strategy for creating a K-12 coherent curriculum. A coherent curriculum is one in which the district's written curriculum is externally congruent with state and/or national academic content and performance standards, and the district's actual, taught curriculum is internally congruent with its standards-based written curriculum.

For at least twenty-five years, curriculum alignment has been a common approach to instructional planning. While its usefulness as a strategy to raise achievement test scores has met with mixed reviews, it is currently experiencing a resurgence in interest as a standards-based process to improve teaching and learning. Evidence of this interest can be found in a variety of current efforts across the country to redesign and realign the local written, taught, and tested curriculum in the light of state or national educational standards.

Standards-based curriculum alignment lies at the heart of school reform because it implies that there has been a "meeting of the minds" regarding academic content standards, performance assessment, and a comprehensive curriculum that will enable students to achieve high levels of proficiency on assessments aligned with standards. The recent proliferation of approaches and tools for standards-based alignment is evidence that there is a great interest in helping educators build their capacity to design standards-based curriculum. Nevertheless, a tendency to jump to the "how-to" steps without providing adequate time for reflection on the "why-to" puts standards-based curriculum alignment in jeopardy of failing to

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[1]Both the terms *curriculum alignment* and *instructional alignment* are discussed in the literature. For purposes of simplification, this paper will refer to curriculum alignment in addressing the content of instruction and instructional approaches.

achieve its goals.

In this paper, the implementation of the "how-to" steps of standards-based curriculum alignment is viewed as a necessary, but insufficient condition for substantive improvements in teaching and learning. Without concomitant dedication to "mindful teaching," curriculum alignment is but a procedure to follow rather than moment-to-moment awareness of the teacher's capacity to influence student learning. Mindful teaching centers the alignment process on those aspects of teaching and learning that educators have the power to improve: the cohesiveness of the curriculum, the attitudes and actions of teachers that affect student learning, and the quality of learning environments. It is through standards-based curriculum alignment guided by mindful teaching that educators may overcome the barriers to school change that have, thus far, impeded achievement of higher standards for all.

### Structure of the Paper

The first section of the paper reviews traditional approaches to curriculum alignment prior to the current standards movement. The second section examines new approaches to designing standards-based curriculum. It also introduces the concepts of curriculum coherence, curriculum inquiry, and mindful teaching to suggest a new perspective on the design of standards-based curriculum within systemic reform efforts.[2] The final section describes an inquiry strategy for achieving standards-based curriculum alignment through mindful teaching.

## Traditional Approaches to Curriculum Alignment Prior to the Current Standards Movement

Historically, curriculum alignment has been part of the curriculum development or renewal process. Curriculum alignment has been generally described as the "relationship between what is specified in the curriculum content and the assessment tools...(or) the relationship between what is taught and what is specified and tested" (English, 1996, p. 166). This definition of alignment reflects the commonly shared belief that the greater the degree of congruence of the local curriculum and the content of tests, the more likely student test scores will reflect higher achievement.

Curriculum alignment is not a new subject. The earliest prototypes of a strategy for aligning curriculum emerged in the programmed learning and mastery learning curriculum

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[2]A related paper on the motivational underpinnings of mindfulness (Godin, 1997) will inform the development of a technical assistance approach regarding standards-based curriculum alignment during the next phase of the project.

packages readily available during the late 1960s and 1970s[3] and the detailed behavioral learning objectives which formed the basis of lesson planning at that time (Mager, 1962). The basis for the defined behaviors stated in the objectives was found in Bloom's taxonomies of cognitive, affective, and psychomotor behaviors that first appeared in the 1950s (Bloom, 1956). As Cohen (1994) discusses, the beginnings of curriculum alignment were clearly associated with behaviorist reinforcement theory in an attempt to make the case that "achievement score variance is a direct effect of the degree to which the assessment item's specific content matches that of instruction" (p.25). The use of instructional objectives was intended to establish a clear connection between an assessment's content and instructional content as defined by the objective. However, the approach led to the creation of hundreds of objectives focused on discrete skills, and teachers soon rejected it as unworkable.

The first efforts to align a district's written curriculum, largely defined by textbook objectives, with the objectives of standardized achievement tests were reported during the late 1970s and early 1980s. For example, the Los Angeles School Department (Scott, 1983a, 1983b)[4] involved thousands of teachers in instructional planning which began with the identification of district objectives generally derived from textbooks that, based upon the results of a standardized achievement test, had not been met. Once identified, teachers revised lesson plans with respect to time allotted, materials used, and instructional approaches to enhance their ability to help students learn skills associated with these objectives. Progress toward implementation of instructional plans was monitored on the basis of midyear tests on the skills associated with district objectives. At the conclusion of the school year, teachers reviewed their accomplishments to note the instructional program's strengths and identify weaknesses that needed to be addressed in the following year.

As the pressure for accountability mounted during the 1980s, curriculum alignment was recognized as a strategy to improve student achievement. The terms *backloading* and *frontloading* characterize the traditional curriculum alignment processes that districts have used.

## Backloading

Backloading involves the alignment of the written curriculum's learning goals with the tested curriculum's content. In English's terminology (1996), backloading is the use of the

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[3]One such example is High Intensity Learning Systems , a mastery learning approach for individualized reading instruction authored by S. Alan Cohen in the 1970s.

[4]For a more detailed discussion of this and other curriculum alignment approaches prior to the current standards movement, please see: RMC Research Corporation (1996). Curriculum and Instructional Alignment: Research Literature Review. Denver, CO: RMC Research Corporation. The author wishes to thank her Denver colleagues for sharing their work.

"tested" curriculum as the "written" curriculum" because the content of the test becomes the content of the written curriculum; that is, decisions regarding objectives of the written curriculum are made on the basis of test objectives. Backloading assumes that, were teachers to actually teach the written curriculum, student achievement test scores would be higher because the taught curriculum would be based upon test objectives. It is common knowledge, however, that the "actual, taught curriculum" often bears little resemblance to the written curriculum, whether or not it is aligned with an assessment's objectives.

Backloading is generally considered the instructional planning process of choice whenever school districts are concerned about accountability for student achievement as measured by norm-referenced standardized achievement test scores (English, 1992, 1996). With this goal in mind, schools or districts use assessment data or the actual content of test objectives as the basis for decisions regarding the written curriculum's learning goals, instructional content, allotment of time, selection of texts and materials, and choice of instructional approach.

Backloading typically begins with a review of assessment data for individual students or groups of students to determine those items that cause the greatest difficulty. Teachers then examine curriculum content to ascertain whether the test content topics with which students have so much difficulty might be related to the degree to which the curriculum sufficiently addresses that content. On the basis of this analysis, teachers may decide to revise instructional content with respect to such variables as time allotted, texts or materials used, or instructional approaches to improve the "match" between the test's content and the curriculum's content. Advocates of backloading assert that a careful match of curriculum content to gaps in student knowledge as defined by assessment data will result in teachers' gaining greater control over instruction and increased predictability regarding the success of the curriculum in preparing students for the assessment. This assumes, however, that the selected assessment reflects what all constituencies agree should be taught and tested.

A recently developed backloading process (Ferguson, 1995) involves the following steps:

- First, criteria are established to compare the congruence of achievement test objectives with curriculum objectives with respect to content and instructional approaches.

- Second, standardized test data for students is examined to identify areas of strength and need in the curriculum.

- Third, those areas of need in the curriculum as revealed by student achievement test data are examined using the criteria for evidence of emphasis in the district's written curriculum and the extent of agreement with the test's objectives.

- Fourth, for those achievement test objectives that are not clearly aligned with

current curriculum objectives, teachers "fill-in" the gaps by modifying their instructional approaches, allotting more time to certain objectives, or selecting alternative curriculum materials.

- Fifth, student progress in mastering the instructional objectives is monitored to determine whether student achievement on tests is improving as a result of the alignment process.

Research largely conducted by Cohen and his associates (Cohen, 1994) claims that "when items align with effective instruction, variance among students' test scores decreases as everyone approaches mastery (p. 27). A paucity of independent research on this subject makes verification of Cohen's claims difficult to determine. However, support for the conclusion that backloading results in increased standardized achievement test scores in high risk school districts is reported by Aguilera and Hendricks (1996). In a study of three high poverty and high minority school districts in Texas that implemented Ferguson's alignment process, reading scores of children in grades 3-4 from the identified schools in the three districts improved an average of 32% from 1993 to 1994. The authors note that the "the identified schools were able to substantially increase their TAAS (Texas Assessment of Academic Skills) scores in a one-year period...using the curriculum alignment process described in this research... (p.4)."

Despite such findings, the more commonly heard remarks about curriculum alignment reflect a skepticism about backloading alignment as a blatant example of "teaching to the test," a process that teachers often consider inappropriate. Furthermore, backloading is frequently construed as a passive instructional approach which places the decisions about curriculum goals in the hands of test developers and textbook writers rather than educators. Standardized achievement tests are not generally viewed as "authentic" assessments of student learning in the classroom because they sample knowledge from commercially available textbooks to which many students have not been exposed. For this reason, teachers often are unwilling to commit time and energy to curriculum alignment for the purpose of raising student achievement test scores.

**Frontloading**

In contrast to backloading, frontloading involves the alignment of the tested curriculum's content with the written curriculum's learning goals. Most commonly, this is the situation that occurs when teachers construct or select assessments that are well-matched to the existing curriculum. When teachers actually teach a written curriculum that is the basis of the tested curriculum, student achievement on performance assessments associated with the district's curriculum can be expected to improve. Recognizing that this approach might increase educators' commitment to aligning the actual, taught curriculum with the written curriculum, frontloading was highlighted as part of the Effective Schools agenda during the late 1980s. The Effective Schools commitment to the active participation of teachers in site-

based decision-making and frontloading alignment appeared to be a good philosophical match.

Vaughn et al. (1990) offer an example of a frontloading alignment process when teachers select or develop assessments that are well-matched to local curriculum content objectives:

- First, educators construct written curriculum guides for each content area across grade levels.

- Second, educators select an achievement test, often a criterion-referenced test, that is a good measure of the existing curriculum. They compare the existing curriculum's objectives to those of the test to isolate those test objectives that are not normally a part of the curriculum. The key is to select a test for which there is a very high degree of congruence with the existing curriculum.

- Third, in recognition that triangulated assessment is likely to yield the most complete picture of student achievement, educators select or develop end-of-unit or end-of-course assessments that are good measures of the existing curriculum. As with standardized test selection, a good match of test content with the existing curriculum is essential.

- Fourth, once the curriculum alignment process is set in motion, improvements in student achievement are monitored as evidence of effective curriculum alignment. If achievement does not improve, educators are more likely to select or devise new assessments than they are to revise curriculum based upon assessment data.

Advocates of frontloading alignment maintain that this is the process of choice when educators firmly believe that their district's curriculum is sufficiently challenging and exercise a great deal of control over the content of assessments. In the most effective examples of frontloading alignment, teachers create instructional units that highlight particular learning goals established by the district; create assessments that enable determination of student achievement with respect to the goals; and design lessons that include content to which students must be exposed if they are to be successful in demonstrating their knowledge on a variety of assessments. The power of frontloading alignment in creating cohesive lesson plans with respect to goals, assessment, and instructional content has been embraced by many teachers. When frontloading is at its best, it frees teachers to employ a range of day-to-day assessments that, in combination with standardized assessments, yield a more realistic picture of both student achievement and the quality of teaching.

### Combining Frontloading and Backloading

The "catch-22" is that while frontloading alignment is most beneficial in planning cohesive instructional units, it is less likely to be useful when trying to align local curriculum objectives with large-scale standardized tests that are not generally sensitive to the curriculum of individual districts. For this reason, English (1996) recommends that backloading be used to align the written curriculum with test objectives when the purpose is to improve student test scores, especially those of at risk students who often score poorly on standardized tests. In turn, he recommends that frontloading be used to select or develop classroom assessments that are aligned with the existing curriculum when the purpose is to gauge student achievement with respect to the district's actual, taught curriculum.

In effect, that is the conclusion also reached by Glatthorn (1994) whose alignment approach is a combination of both frontloading and backloading processes. Glatthorn's (1994) recommended process includes the following steps:

- First, teachers identify the core objectives that are important for all students to master, defined as "mastery" objectives. These objectives constitute what students should know at particular grade levels or within particular courses and are the basis of the district's written curriculum.

- Second, in a frontloading process, teachers construct or select end-of-unit or end-of-course tests that are highly congruent with the written curriculum's learning goals.

- Third, in a backloading process, achievement test objectives are reviewed to determine if curriculum goals sufficiently reflect the test objectives. If the achievement test is likely to include an objective that is not in the written curriculum, teachers add it to the guide.

- Fourth, returning to a frontloading approach, teachers review teaching materials and textbooks to determine if the written curriculum's learning objectives are adequately addressed in the content of the materials. Material that is sufficiently addressed is indicated by citing the page reference.

## New Approaches to Designing Standards-based Curriculum

Even a combination of frontloading and backloading, however, may not turn curriculum alignment into the "magic bullet" that Cohen (1994) has argued it is. Many educators remain skeptical about the value of curriculum alignment because the "on paper" alignment that results from processes such as those described above does not necessarily find its way into

the actual, taught curriculum's content or instructional practice. All too often what appears in a district's written curriculum guide and what constitutes the actual, taught curriculum reveals a wide gulf between the ideal and the reality of instruction. A recent commentary on the "steady dose of low-level, boring, if not downright silly assignments and curricula" to which "poor and minority children," in particular, are often exposed (Dougherty & Barth, 1997, p.40) captures the problem:

> *A class of 4th graders is asked to read a poem about a pizza: The eight lines describe the variety of toppings, from mushrooms to anchovies, that go on a pizza. The students spend considerable time copying each line of the poem into a book they have made by hand, and decorating the book with "lots of color." Each student then writes one sentence about what kind of pizza he or she likes best. This is intended to be an exercise in "critical reading."*

Poorly-designed instructional activities beg the questions, "What are we teaching, and why are we teaching it?" Such questions have led educators to endorse standards of achievement that all students are expected to achieve, regardless of the school they attend or the community in which they live. Returning to the anecdote above, what students read, how reading is discussed, and what types of writing activities are completed are curriculum decisions that benefit from consideration of standards and their aligned assessments. Without evidence of the alignment of standards, assessments, and curriculum, a school's actual, taught curriculum may not sufficiently prepare students to demonstrate the academic skills and content knowledge that they should acquire before they leave high school.

Participation in the process of standards-based curriculum alignment provides educators with an opportunity to be part of the local conversation about quality teaching and learning that is taking place at the state and federal levels of education as well. That conversation is premised on a shared vision of mutually-agreed upon academic content and performance standards; whether students have achieved proficiency with respect to the standards is measured by performance assessments aligned with the standards. While the debate on such questions as the need for state or national standards and assessments and who should select or develop challenging standards and meaningful performance assessments is far from over, the fundamental concept of standards as the "anchor" of a quality school with high expectations for all students has gained acceptance across the country (Goertz et al., 1996; Rothman, 1995).

Currently, many states have endorsed curriculum alignment as a school reform strategy to achieve higher standards for all and are urging districts to engage in the process. In New York State, for example, a recent publication on strategies to build local capacity to improve standards of achievement includes a number of recommendations regarding curriculum alignment such as: review local curricula against state standards and resource guides; develop a core curriculum at all grade levels; and use the state assessments to judge student

progress and to improve instruction (New York State Education Department, 1997, p.17). To assist the districts, some state departments of education such as Colorado, Delaware, and Texas are posting their curriculum frameworks, examples of student work associated with levels of proficiency on state assessments, and examples of exemplary aligned curriculum on their websites. Nonetheless, a recent report from Kentucky (1995) found that many schools were just beginning to redesign curricula based on academic expectations, and the need for teacher training opportunities was great to help teachers understand, plan, and implement standards-based curriculum.

## "How-to" Approaches to Designing Standards-based Curriculum

In response to this need, government agencies, research organizations, and technical assistance providers across the country are disseminating "how-to" information about standards and the design of standards-based curriculum. To date, the predominant venues for information and technical assistance are professional development opportunities, on-line resources, and products or tools that either accompany training sessions or can be purchased directly from the provider.

**Professional Development.** A number of technical assistance and professional development providers are helping teachers design standards-based curriculum. For example:

- The New York Technical Assistance Center (NYTAC) recently developed an alignment process which was presented at the Title I Implementing Schoolwides Conference in Rochester, New York (Liebling, 1997) and is currently developing a more extensive technical assistance approach for districts in New York State.

- One of the most far-reaching professional development commitments to standards-based curriculum alignment is currently taking place in Jefferson County, Colorado (Van Scoyk & Carpenter, 1997, 1996a, 1996b).[5] Using GOALS 2000 funding, this district is training all of its 4,000 teachers in curriculum alignment as an instructional planning process. Teacher consultants who are employed by the district were trained in instructional alignment by S. Alan Cohen. After developing the workshop materials, the in-house consultants were responsible for teaching a number of peers about alignment during a three-day summer institute. In turn, the facilitators are responsible for training groups of teachers in alignment during half-day workshops held within the district. Additional workshops provide greater depth in each area of the curriculum alignment model as well as opportunities to practice developing aligned lessons

[5]I would like to thank Suzie Van Scoyk and Gail Carpenter, the teacher consultants in Jefferson County, for sharing their workshop materials and Rod Killian, the executive director for assessment, for sharing the district's CD-ROM on standards-based education.

using an aligned lesson template developed by the consultants. Facilitators are also available to assist teachers or groups of teachers on a one-to-one basis with issues related to the development and implementation of aligned units or lessons. This past summer, the district also introduced more advanced workshops for those teachers interested in continuing to develop their skills.

The Jefferson County curriculum alignment approach is a combination of integrated frontloading and backloading processes within the framework of standards-based education. Working with the district's existing curriculum framework of standards and benchmarks that are aligned with Colorado's state standards, the basic alignment workshop provide training in a four-component instructional planning model. First, teachers examine the district's standards and benchmarks for specific curriculum content and grade levels. Second, they are given a scenario or example of a performance assessment aligned with the identified standards and benchmarks and are asked to discuss and identify the skills students must have and the concepts they must acquire if they are to be able to demonstrate proficiency on the assessment. Third, teachers construct lessons that provide opportunities for students to acquire new knowledge, practice skills, and review concepts with which they must be familiar prior to the performance assessment. Finally, teachers discuss ways in which knowledge acquired in one situation can be transferred to new situations.

- RMC Research Corporation, Denver has assisted the Jefferson County teacher consultants in collecting data for a case study on the implementation of a standards-based curriculum within the classroom; a research report on the case studies will be available shortly.[6] In addition, as a partner in the STAR Center (Support for Academic Renewal), the comprehensive center serving Texas, RMC Research Corporation, Denver recently made a presentation to Texas educators who are beginning to align curriculum with Texas standards (Lurie, 1997) based upon the Jefferson County experience. The presentation summarizes the Jefferson County instructional alignment model replacing the fourth component of transfer with evaluation and reflection, provides scenarios for discussion of learning objectives, performance assessment, prerequisite skills, and instructional strategies, and uses the aligned lesson template for practice in aligning a lesson with the Texas state standards. A summary alignment matrix provides a visual grid for noting whether particular instructional strategies have been selected to address specific district standards.

- The Mid-continent Regional Educational Laboratory (McREL) in Colorado has

[6]For additional information, please contact Shelley Billig, Vice President, RMC Research Corporation, 1512 Larimer Street, Suite 540, Denver, CO 80202-1620.

created a compendium of national standards (Kendall and Marzano, 1996) that has been disseminated widely. They have developed a process for designing standards-based curriculum (Marzano and Kendall, 1996) that emphasizes establishing both external congruence of a district's written curriculum with state and/or national standards and internal congruence of the actual, taught curriculum with the written curriculum. Trainers are providing technical assistance in implementing their approach.

- The Appalachia Educational Laboratory has created workshop activities for K-12 teachers on topics related to standards-based teaching in mathematics and science (Foster, J. et al., 1995). AEL developed a series of workshops on teaching strategies that reflect the mathematics and science national standards and trained large numbers of facilitators as workshop presenters. Trainers are then responsible for providing within district training on standards-based curriculum alignment. AEL's materials include eight workshops. Typically, a district selects one three-hour workshop for presentation with the district. Each workshop includes a variety of instructional activities for which all materials and transparencies are provided by AEL. Facilitators also receive detailed information regarding procedures to be followed during the session. Workshop topics include an orientation to the national standards and opportunities to examine and design standards-based mathematics and science curriculum.

- A comprehensive effort to engage large numbers of teachers in standards-based curriculum alignment is being undertaken by the National Center on Education and the Economy in Washington, D.C. which is working with states, cities, and school districts across the country. The National Alliance for Restructuring Education (Rothman, 1996) at the National Center on Education and the Economy has developed the HELPS process (Expectations Learning Process for Standards-Driven Units of Study) to assist teachers in planning standards-based instructional units. The training includes multiple workshop sessions during which participants identify standards using national standards documents to establish the goals of a unit; create an aligned performance assessment for the unit and associated rubrics defining levels of performance; and develop appropriate instructional activities that will enable students to achieve proficiency on the performance assessment.

  Recently, the HELPS process has been subsumed by the National Center on Education and the Economy's workshops on using standards and developing standards-based curriculum. The one-day standards workshop discusses the standards movement in general, concentrating on the compendium of national standards that NCEE has recently compiled as the New Standards Performance Standards (National Center on Education and the Economy, 1996). During the day, participants examine samples of student work related to the performance assessments, discuss observations about varying levels of proficiency, and learn

about alternative forms of performance-based assessment that can be incorporated into instructional planning.

The standards workshop is followed by a three-day standards-driven curriculum course in which teachers study how to create learning environments in which all students can achieve higher standards. During the course, teachers design standards-based instructional units which are clearly linked to national curriculum standards and to performance assessments associated with the standards. By the conclusion of the workshop, teachers have created a cohesive unit of sequenced lessons that addresses the skills, strategies, and content students must learn in order to demonstrate a high degree of proficiency on the end-of-unit performance assessment.

In a related approach, NCEE also offers year-long Curriculum Networks, professional development sessions in which teachers learn how to improve student performance on a sequence of curriculum assignments designed to help students achieve defined standards. Unlike the workshops noted above in which teachers create their own standards-based units, participants in the Curriculum Network use "core assignments" developed by NCEE staff with their students. These assignments are examples of standards-based curriculum designed by NCEE. Here, the focus is on analyzing student work related to these assignments rather than constructing the units. The intent of the ongoing analysis of student work is to help teachers articulate the relationship between high quality standards-based instruction and the achievement of higher standards of learning by students.

**On-line Resources.** The Internet has quickly become the most readily accessible source of current information on standards-based education throughout the United States. The U.S. Department of Education (www.ed.gov) provides extensive information on standards-based reform and offers links to a host of related education sites. State departments of education have posted their curriculum frameworks on the Internet and are including resource guides that include examples of performance assessments and aligned curriculum (i.e. New York: www.nysed.gov). School districts and individual schools have also established sites that describe their current efforts in standards-based reform. Annotated lists of Internet sites which include K-12 educational standards and curriculum framework documents such as that maintained by the Putnam Valley Schools in New York (www.putwest.boces.org) are readily available to assist educators in linking directly to state curriculum frameworks and organizations involved in standards development. This site, for example, provides direct links to 34 state curriculum frameworks. Some states are linking their state frameworks to performance indicators (i.e. Delaware), while others are linking their standards to model lessons (i.e. Colorado). The Putnam Valley Schools site also provides links to the research and technical assistance organizations noted above along with additional links to the major teacher organizations, such as the National Council of Teachers

of Mathematics, that have developed national curriculum content standards.

Resources for developing lessons such as the *Ask ERIC* lesson database and utilizing web-based information in instruction such as *Classroom Connect* and *Connections* are increasingly available. Most relevant to alignment, however, one recent on-line guide, the Teachers' Internet Use Guide (www.rmcdenver.com) includes not only links to on-line sources of information for constructing standards-driven lessons, but also a recommended process for constructing aligned curriculum: creating clear learning objectives that are congruent with specific state standards; designing instruction that utilizes web-based information and resources; implementing the lesson; and evaluating the lesson's effectiveness (RMC Research Corporation, 1997). The guide also includes examples of aligned lessons.

Like many localities, the Jefferson County, Colorado website (www.jeffco.k12.co.us) provides teachers in the district and others with comprehensive information on standards-based curriculum alignment. Local teachers have had access to this information previously as part of professional development training on alignment, but the on-line resource gives them and anyone else interested in the subject immediate access to content standards, proficiencies associated with the standards, and specific examples of instructional activities and assessments by grade level that are congruent with the standards and proficiencies. Teachers can also use an on-line lesson template to create lessons that are aligned with the district's content standards.

**Products and Tools.** In general, there is a wide variety of products and tools for alignment that are being produced by research facilities and technical assistance providers for dissemination as part of professional development activities: handbooks, toolkits, alignment activities, software, videodiscs, CD-ROM, and software. Some of these materials, such as the Mid-continent Regional Educational Laboratory's compendium of national standards (Kendall and Marzano, 1996) and NCEE's new standards noted above are available on disk as well as in print and can be purchased by the general public. Others, such as Maine's Key Learnings (RMC Research Corporation, 1996) were developed for specific purposes such as the discussion of the Maine Learning Results: K-2 and reflection on personal beliefs about standards-based education.

States and localities are also making their curriculum frameworks readily available to educators and to the public in print and other formats. For example, Maryland's High School Core Learning Goals (1996) CD-ROM identifies the state's goals and proficiencies for each content area. Jefferson County has produced a CD-ROM for its teachers that includes the district's curriculum standards and benchmarks along with the aligned template and samples of aligned curriculum.

It is, of course, simply too early to tell whether the currently available array of curriculum alignment workshops, on-line resources, and products and tools will prove effective in raising

the standards for teaching and learning or in improving instructional coherence. State assessment data aligned with state standards is just becoming available, and the use of this data to make modifications in curriculum and instruction is only in its infancy. In addition, as yet, there is limited evidence on the relationship of standards-based curriculum alignment to higher standards of teaching and learning.

## "Why-to" Approaches to Designing Standards-based Curriculum

Although the impact of standards-based curriculum on higher standards of teaching and learning is as yet unclear, the success of standards-based curriculum alignment may well rest with the intent of each teacher to embrace not only the "how-to" of alignment, but the "why-to" as well. Merely going through the motions of linking standards, assessments, and instruction or the piecemeal matching of state standards to existing curriculum units is unlikely to result in the changes in teaching and learning that systemic reform seeks. Even carefully crafted standards-based units might not have their desired impact if they are the work of one teacher in a sea of others who remain uncommitted to the standards vision of an instructionally coherent curriculum. Recent perspectives on curriculum coherence, mindful teaching, and curriculum inquiry may lend insight into the "why-to" of standards-based curriculum and complement existing "how-to" approaches.

**Curriculum Coherence.** Systemic educational reform has, at its primary goal, the achievement of a coherent curriculum (Beane, 1995)[7] throughout the entire educational system: federal and state governments, higher education, and local districts. In a 1996 conference on instructional coherence sponsored by the Southwest Regional Educational Laboratory, representatives from these organizations came together to discuss the vision of coherence and the individual contributions that each organization must be prepared to make if the vision is to be achieved. Based upon input from the participants on the meaning of coherence, the term has been operationally defined as occurring when:

> **policies, strategies, and content across subject areas and grade levels are consistent and aligned, reflect standards, and result in students, teachers, and parents positively perceiving the rationale, scope, and sequence of educational experiences.**
>
> (Finley, 1997, p.4)

Indications of consistency are observable throughout a coherent educational system. For example, preservice higher education courses focus on academic content and performance standards for each curriculum area and help beginning teachers understand how to plan instruction that is both internally and externally cohesive. In turn, ongoing professional

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[7]The 1995 ASCD Yearbook was devoted to the subject of a coherent curriculum.

development courses conducted both by higher education and other providers focus on helping current teachers renew curriculum in the light of standards, performance assessment, and "best" instructional practice. Similarly, both the federal government and state governments have continuing obligations to re-visit national and state standards and aligned assessments and to provide the intellectual and financial resources that districts need to achieve the vision of coherence locally.

The responsibility for achieving coherence, however, lies primarily with local districts. Indicators of this coherence may be found in observable evidence of a district's standards-based written curriculum that is aligned externally with state or national standards and an actual, taught curriculum that is aligned internally with the district's written curriculum. Standards-based curriculum alignment is an important strategy for the achievement of external and internal curriculum coherence. The result of coherence is the creation of a unified K-12 educational system that, in its totality, provides a quality learning environment in which students will acquire the skills and abilities they need to achieve their lifelong aspirations.

**Mindful Teaching.** The concept of mindful teaching (Langer, 1996) may also inform a new perspective on standards-based curriculum alignment that asks educators to continuously re-examine the actual, taught curriculum for evidence of cohesiveness. In Langer's view, a mindful state exists when a learner is engaged in "sideways learning" that embodies an openness to new ideas, alertness to similarities and differences, sensitivity to particular contexts, implicit awareness of multiple perspectives, and awareness of what is occurring in the present (p.23). Mindful teaching, thus, is a psychological state in which teachers are open to reflection on the extent to which their everyday actions support the standards upon which the curriculum is based.

**Curriculum Inquiry.** An approach that encourages mindful teaching through conversation about teaching and learning is the "curriculum inquiry cycle." As constructed by the Northwest Regional Educational Laboratory (Carr, 1997), a generic curriculum inquiry cycle involves four elements: examining current practice, making decisions about the extent to which individual practice is aligned or misaligned with state-of-the-art knowledge of teaching and learning; creating an optimal learning environment; and engaging in collaborative classroom research with colleagues to achieve alignment and instructional coherence.

## An Inquiry Strategy for Achieving Standards-based Curriculum Alignment Through Mindful Teaching

Incorporating both the "how-to" and "why-to" approaches to designing standards-based curriculum suggests an inquiry strategy by which a district achieves a K-12 coherent curriculum. A district's coherent K-12 written curriculum is one that is externally congruent with state or national standards. In turn, instructional planning at the school level is internally congruent with the district's standards-based curriculum through mindful connections of standards, assessments, and curriculum. As represented in Figure 1, standards-based curriculum alignment is depicted as a two-phase inquiry strategy to achieve curriculum coherence.

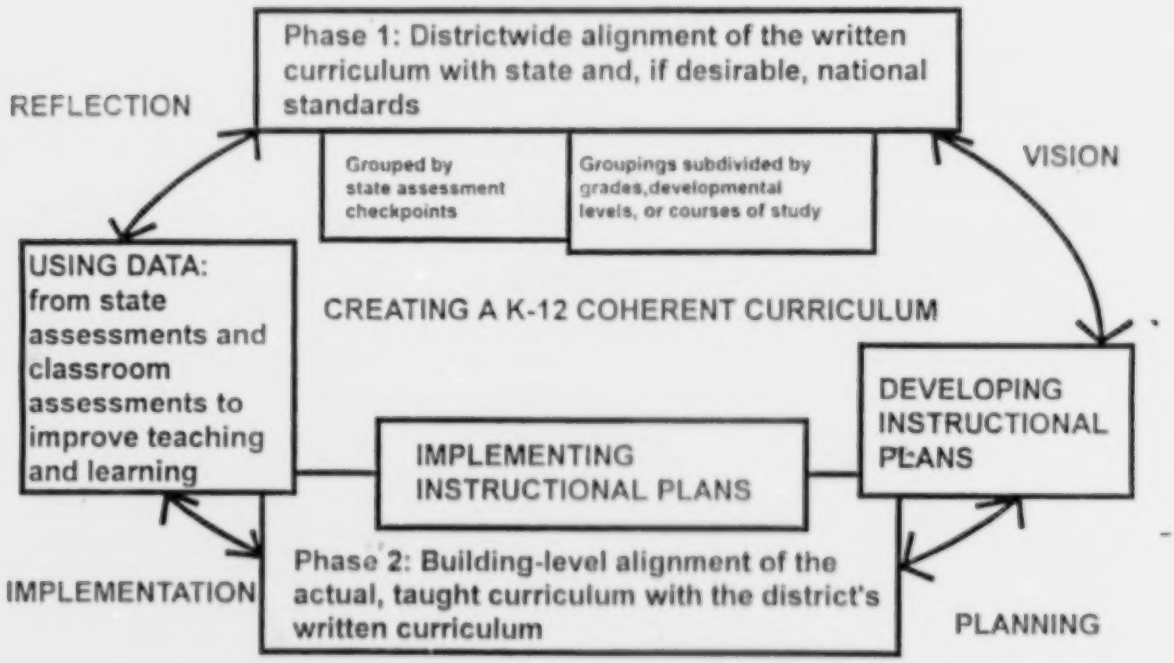
Phase 1: Districtwide alignment of the written curriculum with state and, if desirable, national standards
REFLECTION
VISION
Grouped by state assessment checkpoints
Groupings subdivided by grades,developmental levels, or courses of study
USING DATA: from state assessments and classroom assessments to improve teaching and learning
CREATING A K-12 COHERENT CURRICULUM
DEVELOPING INSTRUCTIONAL PLANS
IMPLEMENTING INSTRUCTIONAL PLANS
IMPLEMENTATION
Phase 2: Building-level alignment of the actual, taught curriculum with the district's written curriculum
PLANNING

Figure 1. An Inquiry Strategy for Achieving Standards-based Curriculum Alignment Through Mindful Teaching

**Phase 1: Establishing external congruence of the district's written curriculum with state or national standards**

The goal of the Phase 1 district-wide process is to establish the external congruence of the district's written curriculum with state or national standards; external congruence supports the credibility of the district's written curriculum. This "front-end alignment" process (Mitchell, 1995) affirms the fundamental importance of endorsed, mutually-agreed upon curriculum standards as "driving" instructional planning decisions (Marzano & Kendall, 1996; Steffy, 1995). Phase 1 has two components: aligning the district's written curriculum with state and/or national standards grouped by state assessment checkpoints and examining the general groupings for benchmarks specific to grades, developmental levels, or courses of study.

**Component 1: Aligning the district's written curriculum with state and/or national standards grouped by state assessment checkpoints.** The process of establishing the external congruence of the written curriculum with state or national standards is the responsibility of the school district. To begin, the district convenes a steering committee that oversees the alignment process to ensure similar levels of specificity and format in the documents of each curriculum committee. The bulk of the work in setting district standards and benchmarks, however, is undertaken by curriculum committees, generally composed of representatives from all grade levels and across all buildings within the district. Each curriculum committee undertakes an analysis of existing state and/or national documents. The purpose of this analysis is to understand the standards and achieve consensus as to the adoption or adaptation of those standards for the district's written curriculum. Each committee then drafts a framework of standards and associated benchmarks according to the state assessment checkpoints for each content area; more than likely, the district's written curriculum will parallel closely existing state and/or national standards. Involving community members and teachers who are not members of the district curriculum committees in the development of the written curriculum by sharing drafts and soliciting feedback will help to insure that the final documents will be endorsed by most stakeholders as representing the district's mutually-shared vision of high standards for all.

Creating a district framework that is congruent with the state's framework is especially important if students in a particular district are expected to demonstrate proficiency on standards aligned with a state assessment. However, experts familiar with state standards caution that some of the state documents contain vague standards that are too general to be of use in curriculum or assessment decisions. Thus, while districts are generally using the state frameworks as a guide for standards that will be assessed, many are also using national standards documents for elaboration on academic skills and conceptual knowledge (Gandal, 1995). The recent availability of compendiums of national standards (Kendall & Marzano, 1996; New Standards Student Performance Standards, 1996) is making the task of the

district's review of national standards documents more manageable.

The resulting K-12 written curriculum framework specifies curriculum standards and benchmarks for each strand of a content area. The curriculum standards are general statements of skills and knowledge that all students should acquire in the course of their schooling, and the benchmarks provide detail on the information, skills, and strategies that should be the focus of the curriculum at varying points along the K-12 continuum. The benchmarks are frequently used as the basis for state performance assessments. However, they should also be used by districts as the basis for classroom assessments and the content of instructional planning.

Figure 2[8] provides an example of a New York State English Language Arts standard for accessing information and understanding written language and associated listening and reading benchmarks for K-4.

| NYS Standard 1: English Language Arts "Students will read, write, listen, and speak for information and understanding." | District Standard 1: English Language Arts |
|---|---|
| Listening and Reading Benchmarks, K-4 | Listening and Reading Benchmarks, K-4 |
| Gather and interpret information from children's reference books, magazines, textbooks, electronic bulletin boards, audio and media presentations, oral interviews, and from such sources as charts, graphs, maps, and diagrams | |
| Select information appropriate to the purpose of their investigation and relate ideas from one text to another | |
| Select and use strategies that have been taught for notetaking, organizing, and categorizing information | |
| Ask specific questions to clarify and extend meaning | |
| Make appropriate and effective use of strategies to construct meaning from print, such as prior knowledge about a subject, structural and context clues, and decoding | |

Source: NYS English Language Arts Resource Guide (Undated). Standards for English Language Arts. Albany, NY: The University of the State of New York and the New York State Education Department, p. 2. The guide can be accessed on the world-wide web at http://www.nysed.gov.
NYTAC/RMC Research, Portsmouth, NH

Figure 2. Aligning the District's Vision with State and/or National Standards

[8]It is important to note that the examples of alignment using the New York State English language arts standards are offered merely to illustrate the alignment process. They were created by the author and should not be construed as an endorsement of this process by the New York State Department of Education.

During Component 1 of Phase 1, representatives from all buildings across the district who work with children K-4 come together to build a mutual understanding of those statements that will constitute the district's vision for the English Language Arts K-4 instructional program. The group must decide whether to adopt the state standard as is or modify it to better reflect the community's educational vision by including standards from other sources.

**Component 2: Examining the groupings subdivided by grade, developmental level, or course of study.** After the district's K-12 written curriculum has been approved, the second component of Phase 1 is undertaken. Using the New York State English language arts standard for reading, writing, speaking, and listening for information and understanding and associated listening and reading benchmarks for K-4, for example, Figure 3 provides an example of aligning the district's grade level curriculum with its standards and benchmarks.

| District Standard 1: English Language Arts "Students will read, write, listen, and speak for information and understanding." | Emphasis Scale: ** addressed in >80% of units<br>* addressed in 60-80% of units<br>+ addressed in 40-60% of units<br>- addressed in <40% of units | | | | |
|---|---|---|---|---|---|
| Listening and Reading Benchmarks, K-4 | K | 1 | 2 | 3 | 4 |
| Gather and interpret information from children's reference books, magazines, textbooks, electronic bulletin boards, audio and media presentations, oral interviews, and from such sources as charts, graphs, maps, and diagrams | - | + | * | ** | ** |
| Select information appropriate to the purpose of their investigation and relate ideas from one text to another | - | * | * | ** | ** |
| Select and use strategies that have been taught for notetaking, organizing, and categorizing information | + | + | + | * | * |
| Ask specific questions to clarify and extend meaning | - | + | + | * | ** |
| Make appropriate and effective use of strategies to construct meaning from print, such as prior knowledge about a subject, structural and context clues, and decoding | + | * | * | ** | ** |

Source: NYS English Language Arts Resource Guide (Undated). Standards for English Language Arts. Albany, NY: The University of the State of New York and the New York State Education Department, p. 2. The guide can be accessed on the world-wide web at http://www.nysed.gov.
NYTAC/RMC Research, Portsmouth, NH

Figure 3. Aligning the districtwide grade level standards and benchmarks with the district's standards and benchmarks related to the state assessment checkpoints

Representatives from grade level teachers and/or course faculty across buildings examine each grouping of benchmarks within standards with an eye toward specific grade levels. Using a simple scale, committee members decide to what extent particular benchmarks are emphasized within a grade level's or course's units of study. These indicators are important as they will become the reference point for instructional planning during Phase 2. For example, as depicted in Figure 3, the team has decided that in grade 3, all of the identified benchmarks will be included in at least 60% of the language arts units of instruction.

In addition, it may also be desirable to rework the benchmarks to make them developmentally appropriate for particular grades. Using this approach, in succeeding grades, a benchmark may be reintroduced in greater complexity as children mature, leading to the defined periods when state assessments take place. To illustrate, one of the State of New Hampshire's End-of-Grade 3 benchmarks for the reading curriculum standard is:

> **Determine the pronunciation and meaning of words by using phonics, semantics, syntactics, and context as well as knowledge of roots, prefixes, and suffixes.**
>
> (NH State Department of Education, 1995)

- At the end of kindergarten, this decoding benchmark might emphasize such abilities as letter recognition, letter/sound associations, recognition of common sight words, familiarity with rhyming patterns, and use of picture context as emergent literacy reading strategies.

- At the end of grade 2, the benchmark might emphasize such early literacy skills as blending sounds to pronounce familiar words, identifying a wide range of spelling-sound patterns, using a sight word recognition vocabulary, and demonstrating fluency in decoding a variety of text types.

The work of cross-building teams does not end with further refinement of the standards and benchmarks. Members must also review current research on best instructional practice and critical content to be included in the instructional program, current texts and materials, and examples of performance assessments aligned with the district's standards and benchmarks. Some states, such as New York, distribute this information in resource guides, but others do not. This information will prove invaluable when teams at the building level construct the actual, taught curriculum during Phase 2 of the alignment process. The final result of Phase 1 alignment is a district-wide written curriculum that is externally congruent with state and national standards. The resulting framework becomes a comprehensive statement of the district's vision for standards-based education.

**Phase 2: Establishing internal congruence of the actual, taught curriculum with the district's standards-based written curriculum**

Once the external congruence of the written curriculum with state or national standards has been established, each school within a district turns its attention to aligning instructional plans with the district's standards-based written curriculum. The goal of Phase 2 is to establish the internal congruence of each school's actual, taught curriculum with the district's written curriculum so that the district's vision of standards-based education can be achieved. Phase 2 has three components: developing instructional plans, implementing instructional plans, and using data to improve teaching and learning.

**Component 1: Developing instructional plans.** Working within schools, colleagues collaborate with other teachers who teach similar grade levels or courses to map the curriculum (Jacobs, 1997). Component 1's curriculum mapping ensures not only that content redundancy is avoided, but also that the district-endorsed content standards and benchmarks are adequately addressed in particular grades or courses. Figure 4 represents the alignment of a school's grade level curriculum with the district's English language arts framework.

District Standard 1: English Language Arts
"Students will read, write, listen, and speak for information and understanding."

Example: Evergreen Elementary

Emphasis: + addressed in unit
- not addressed

| Listening and Reading Benchmarks, K-4 | GRADE 3 UNITS 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Gather and interpret information from children's reference books, magazines, textbooks, electronic bulletin boards, audio and media presentations, oral interviews, and from such sources as charts, graphs, maps, and diagrams | + | + | + | + | + | + |
| Select information appropriate to the purpose of their investigation and relate ideas from one text to another | + | + | + | + | + | + |
| Select and use strategies that have been taught for notetaking, organizing, and categorizing information | + | + | - | + | - | + |
| Ask specific q[illegible]ons to clarify and extend meaning | + | + | + | - | + | - |
| Make appropriate and effective use of strategies to construct meaning from print, such as prior knowledge about a subject, structural and context clues, and decoding | + | + | + | + | + | + |

Source: NYS English Language Arts Resource Guide (Undated). Standards for English Language Arts. Albany, NY: The University of the State of New York and the New York State Education Department, p. 2. The guide can be accessed on the world-wide web at http://www.nysed.gov.
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Figure 4. Aligning a school's grade level curriculum with the district's English language arts curriculum framework

Looking at grade 3, it is clear that the identified benchmarks for the standard associated with using language arts for information and understanding are addressed in greater than 60% of the year's units. This indicates that the building's grade level team is working toward alignment of the grade level curriculum with the district's established K-4 standards vision.

Figure 5 provides further support for the alignment of the actual, taught curriculum with the district's English Language Arts framework. Once again drawing upon New York State's standard involving reading, writing, listening, and speaking for information and understanding, unit planning for grade 3 would involve the identification of each significant unit topic and its duration; the state standards and benchmarks that are the focus of the unit; the end-of-unit performance assessment task and measurement tool; and the number of lessons that comprise the unit. Unit planning also includes reflection on the quality of the unit.

District Standard 1: English Language Arts
"Students will read, write, listen, and speak for information and understanding."

Example: Evergreen Elementary

GRADE 3 UNITS

| Unit Highlights | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Topic | | Native Americans: The Iroquois Nation | | | | |
| Duration and Number of Lessons | | 6 weeks; 25-30 lessons | | | | |
| ELA Standards/Benchmarks Addressed in Unit | | ELA Standard 1: Benchmarks 1, 2, 3, 4, 5 | | | | |
| End-of-Unit Performance Assessment Type & Measurement | | Write a report & share it in an oral presentation. Proficiency Rubrics; Reading/Writing Folders | | | | |
| End-of-unit Reflection | | T/S Narratives | | | | |

Source of curriculum example: NYS English Language Arts Resource Guide (Undated). Albany, NY: The University of the State of New York and the New York State Education Department. The guide can be accessed on the world-wide web at http://www.nysed.gov.
NYTAC/RMC Research, Portsmouth, NH

Figure 5. Aligning a school's actual, taught curriculum with the district's English language arts curriculum framework: Unit Mapping

As Figure 5 shows, in a given year, grade 3 students might engage in six significant units of study, each of which is approximately six weeks in duration. In the example, Unit 2 involves the study of Native American culture through literature, and it addresses the identified English Language Arts standard and all of the associated benchmarks. Recall from Figure 3 that the district's K-4 team had previously determined that all of the indicated benchmarks for this standard are included in at least 60% of grade 3's English language arts units. Thus, an indicator that a district is engaged in planning standards-based curriculum is that each unit's standards and benchmarks are selected prior to decisions about assessments or the actual curriculum. Performance assessments are then pegged to the selected standards, and each lesson's actual curriculum content and instructional approach is selected for its value related to the aligned standards and assessments.[9]

As the final step in aligning the actual, taught curriculum with the district's standards-based vision, each lesson within a unit is mapped. Figure 6 depicts lesson planning for a New York State third grade unit on the Iroquois Nation.

Example: Evergreen Elementary

District Standard 1: English Language Arts
"Students will read, write, listen, and speak for information and understanding."

Grade 3, Unit 2: Iroquois Nation

| Lessons | Standards/ Benchmarks | Instructional Approach | Materials | Mods | Assessment | Reflect |
|---|---|---|---|---|---|---|
| 1-5 Literatue Study Fiction/Poetry | | | | | | |
| 6-15 Read Nonfiction | ELA Standard 1 Benchmarks 1, 2, 3,4, 5 | Reciprocal Teaching; KWL | Information text on Iroquois; KWL MAP | Peer/Pair Reading, A/V tapes | Reading Conference; Kid-watching | Daily teacher journal |
| 16-25 Draft written reports; oral presentation make visual | | | | | | |
| 25-30 Presentations | | | | | | |

Source of curriculum example: NYS English Language Arts Resource Guide (Undated). Albany, NY: The University of the State of New York and the New York State Education Department. The guide can be accessed on the world-wide web at http://www.nysed.gov.
NYTAC/RMC Research, Portsmouth, NH

Figure 6. Aligning a school's actual, taught curriculum with the district's English language arts curriculum framework: Lesson Mapping

[9]Standards-linked curriculum alignment, in contrast, generally begins with existing curriculum. Individual teachers working on individual units select standards or benchmarks after designing or selecting the curriculum unit in an effort to associate a standard with the unit's instructional intent.

Each unit is divided into individual lessons that focus on particular standards/benchmarks identified for the unit, instructional materials and approaches, ongoing assessments, modifications to address individual needs, and a daily reflection on lesson quality. Lessons are created to help students acquire the skills, strategies, and content knowledge they will need to be successful on the end-of-unit performance assessment.

The actual units of instruction including the unit overview, lesson plans, and unit reflection become part of a school curriculum library. Units developed by individual teachers or teams of teachers can be shared with colleagues who, while maintaining the integrity of the original design, may add suggestions for additional texts, materials, and instructional approaches. In this sense, the units are "dynamic," changing and growing as teachers work with the material and adapting it to fit individual teaching and learning styles. What is most important is that alternative lessons address the identified standards and benchmarks so that students will be successful on end-of-unit performance assessments.

**Component 2: Implementing Instructional Plans.** During this phase, the teacher's self-assessment of teaching effectiveness is important if plans are to be continuously improved. A teacher's daily reflection on each lesson's effectiveness as well as a summary reflection at the conclusion of a unit can provide important information that can be used to modify lessons and units to better meet the needs of students. Feedback from colleagues who observe one another's lessons and who meet regularly to share successes and discuss strategies to overcome difficulties can also help to improve instruction. Finally, administrators often observe classroom teaching and offer suggestions for improvement.

**Component 3: Using Data to Improve Teaching and Learning.** The final component of Phase 2 involves the use of data to improve teaching and learning. Data sources include: teacher self-assessments of unit and lesson effectiveness; feedback from colleagues and administrators; and data from state and classroom assessments. The student assessment data will help the district or school identify curriculum areas of strength and need. When assessment data reveals that students have not achieved acceptable levels of proficiency related to particular standards or benchmarks, the emphasis of instruction must shift to address the discrepancies. This may be require a re-examination of district's standards-based vision or a different focus for unit or lesson planning.

## Conclusion

The inquiry strategy for achieving standards-based curriculum alignment through mindful teaching incorporates both frontloading and backloading processes. Though frontloading, the district's standards-based curriculum vision anchors the development of instructional plans that highlight particular standards, classroom assessments to gauge student achievement of standards, and carefully designed instructional activities which enable students to perform well on assessments aligned with standards. Through backloading, classroom assessments are analyzed to identify the key skills, strategies, and content that should be included as part

of instructional activities; this increases the likelihood that students will demonstrate proficiency on the end-of-unit assessment. Additional analysis of assessment data from state tests aligned with state standards provides further information that can inform the focus of the curriculum. Both frontloading and backloading, thus, support the alignment of the written, taught, and tested curriculum. The strength of the integrated alignment processes contributes to the cohesiveness of the district's K-12 curriculum.

In the context of systemic reform, both phases of the standards-based curriculum alignment inquiry strategy contribute to a district-wide coherent curriculum within content areas and across classrooms, grade levels, buildings, and individual courses. Through standards-based curriculum alignment, a district achieves external congruence of its standards-based educational vision with state or national standards and internal congruence of its actual, taught curriculum with the standards-based written curriculum. Building into the "how-to" curriculum alignment process opportunities to understand the "why-to" may, indeed, enable standards-based curriculum alignment to become the "magic bullet" in the quest for higher standards of achievement that Cohen once claimed it was.

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